

WHAT IS CLAIMED IS:

1. A radio terminal device for use in a radio communication system in which packet communications are
5 carried out by setting up one or more connections between the radio terminal device and a radio base station, the radio terminal device comprising:

10 a packet receiving unit configured to receive packets from the radio base station through the connections; and
15 a timeout control unit configured to carry out a timeout control in which any packet that cannot be received completely through one connection within a timeout interval that is set in advance with respect to the one connection is regarded as lost, a change in a number of active
connections that are currently carrying out communications with the radio base station is detected, and a new timeout interval is calculated and set with respect to each connection when the change in the number of active
connections is detected.

20 2. The radio terminal device of claim 1, wherein the timeout control unit counts the number of active connections as a number of connections that are actually set up between the radio base station and radio terminals.

25 3. The radio terminal device of claim 1, wherein the timeout control unit counts the number of active connections as a number of connections that are set up between the radio base station and radio terminals and for
30 which packet transmission has been carried out within a prescribed period of time.

4. The radio terminal device of claim 1, wherein the timeout control unit calculates and sets the new timeout
35 interval which is shorter than a previous timeout interval

when the number of active connection is decreased, or calculates and sets the new timeout interval which is longer than the previous timeout interval when the number of active connection is increased.

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5. The radio terminal device of claim 1, wherein the timeout control unit leaves the timeout interval unchanged for a connection for which a data transmission rate is guaranteed at a time of setting up that connection.

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6. The radio terminal device of claim 1, wherein the timeout control unit also calculates and sets the new timeout interval with respect to each connection when a data transmission rate provided with respect to one of the 15 connections is changed.

7. A radio base station device for use in a radio communication system in which packet communications are carried out by setting up one or more connections between 20 the radio base station device and radio terminals, the radio base station device comprising:

a packet receiving unit configured to receive packets from the radio terminals through the connections; and
a timeout control unit configured to carry out a 25 timeout control in which any packet that cannot be received completely through one connection within a timeout interval that is set in advance with respect to the one connection is regarded as lost, a change in a number of active connections that are currently carrying out communications 30 with the radio base station device is detected, and a new timeout interval is calculated and set with respect to each connection when the change in the number of active connections is detected.

35 8. The radio base station device of claim 7, wherein the

timeout control unit counts the number of active connections as a number of connections that are actually set up between the radio base station device and the radio terminals.

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9. The radio base station device of claim 7, wherein the timeout control unit counts the number of active connections as a number of connections that are set up between the radio base station device and the radio terminals and for which packet transmission has been carried out within a prescribed period of time.

10. The radio base station device of claim 7, wherein the timeout control unit calculates and sets the new timeout interval which is shorter than a previous timeout interval when the number of active connection is decreased, or calculates and sets the new timeout interval which is longer than the previous timeout interval when the number of active connection is increased.

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11. The radio base station device of claim 7, wherein the timeout control unit leaves the timeout interval unchanged for a connection for which a data transmission rate is guaranteed at a time of setting up that connection.

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12. The radio base station device of claim 7, wherein the timeout control unit also calculates and sets the new timeout interval with respect to each connection when a data transmission rate provided with respect to one of the connections is changed.

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13. A method of timeout control at either one of a radio terminal and a radio base station in a radio communication system in which packet communications are carried out by setting up one or more connections between the radio base

station and radio terminals, the method comprising:

regarding any packet that cannot be received completely through one connection within a timeout interval that is set in advance with respect to the one connection

5 as lost;

detecting a change in a number of active connections that are currently carrying out communications with the radio base station; and

10 calculating and setting a new timeout interval with respect to each connection when the change in the number of active connections is detected.

14. The method of claim 13, wherein the detecting step counts the number of active connections as a number of 15 connections that are actually set up between the radio base station and the radio terminals.

15. The method of claim 13, wherein the detecting step counts the number of active connections as a number of 20 connections that are set up between the radio base station and the radio terminals and for which packet transmission has been carried out within a prescribed period of time.

16. The method of claim 13, wherein the calculating and 25 setting step calculates and sets the new timeout interval which is shorter than a previous timeout interval when the number of active connection is decreased, or calculates and sets the new timeout interval which is longer than the previous timeout interval when the number of active 30 connection is increased.

17. The method of claim 13, wherein the calculating and setting step leaves the timeout interval unchanged for a connection for which a data transmission rate is guaranteed 35 at a time of setting up that connection.

18. The method of claim 13, wherein the calculating and setting step also calculates and sets the new timeout interval with respect to each connection when a data 5 transmission rate provided with respect to one of the connections is changed.

19. A computer program product for causing a computer to execute a method of timeout control at either one of a 10 radio terminal and a radio base station in a radio communication system in which packet communications are carried out by setting up one or more connections between the radio base station and radio terminals, the computer program product comprising:

15 first computer program codes for causing the computer to regard any packet that cannot be received completely through one connection within a timeout interval that is set in advance with respect to the one connection as lost;

20 second computer program codes for causing the computer to detect a change in a number of active connections that are currently carrying out communications with the radio base station; and

25 third computer program codes for causing the computer to calculate and set a new timeout interval with respect to each connection when the change in the number of active connections is detected.